

Utah Lake Shoreline Restoration: Year 8

Project ID: 3670

Status: Current

Fiscal Year: 2017

Submitted By: N/A

Total Acres: 8,215

Project Manager: Eric Ellis

PM Agency: Utah Lake Commission

PM Office: Provo

Lead: Utah Lake Commission

WRI Region: Central

Description:

Continuation of a previously funded, multi-year project at Utah Lake. Begins treatment of 2257 acres on the east side of Utah Lake to remove phragmites and other invasive vegetation. Continues ongoing maintenance of precious treatment efforts.

Location:

2257 acres along the east shore of Utah Lake. The treatment areas are comprised of shoreline in "Provo Bay" and "Powell Slough"

PROJECT NEED

Need For Project:

Utah Lake has roughly 75 miles of shoreline, much of which is utilized for sports, recreation, and wetland habitats. Utilizing 2006 aerial photos of Utah Lake, the Utah County Weed Supervisor as directed by the Utah County Weed board estimated there was over 5,800 acres of phragmites infestation. Its existence creates an invasive monoculture along the Utah Lake shoreline. Large numbers of tamarisk and Russian olive around the lake are also a problem. Their removal and establishment of desirable plant species greatly benefits the watershed. Phragmites proliferation has the potential to choke out valuable wetlands found around the lake. It continues to intrude upon the habitat area of several endangered or threatened species, as well as species of concern. These are listed in the "Species" section of this grant proposal and were identified as species that would benefit from this project by UDWR biologists.

Phragmites is difficult to eradicate without an aggressive vegetation management program. Phragmites is capable of surviving the harshest conditions including fire, frost, high pH and flood. It is tolerant of low water, storm water discharge, road salts and pollution. It spreads by rhizomes and forms a dense mat that out competes and eliminates native vegetation and destroys valuable wetlands. It was added to the Utah County list of noxious weeds by the Utah County Commission in 2008.

Stands of phragmites grow up to 14 feet tall and create an impenetrable insecticide buffer which allows breeding mosquitos to thrive. Mosquitoes around Utah Lake and the County have tested positive for West Nile Virus.

Each year when the phragmites dies back and dries out, lake shore residential developments, parks, bridges and other structures face the risk of extreme fire danger. In 2007 the Division of Forestry, Fire & State Lands was court ordered to create a 30-foot firebreak as a safety measure to protect the homes in case of a fire.

The Utah Lake Commission has coordinated the creation of a long-term shoreline restoration program with local municipal governments, Utah County, and concerned state and federal agencies as well as private land owners to remove phragmites and other invasive plant species such as tamarisk and Russian olive from the shoreline of Utah Lake and to restore native vegetation where beneficial. It is a multiple section removal effort which requires yearly dedicated funding to ensure its success.

Objectives:

This year's efforts will continue monitoring of previous years projects and maintenance of approximately 450 acres within those project areas. This includes treatment of regrowth as well as continuing efforts to smash 1200 acres of dead phragmites to accelerate decomposition. Treatment will also begin on 2257 acres on the shoreline of Utah Lake on the east side of the lake in Provo Bay and the Powell Slough. We plan on additional removal of tamarisk and Russian olive at strategic locations as identified by the Utah Lake Commission and Division of Forestry Fire and State Lands around the lake as well.

Threats / Risks:

Phragmites proliferation, which began a mere 15 years ago, will eventually choke out the valuable wetlands found around the lake. Utah Lake is at the confluence of multiple HUC 12 watershed resources making the lake a critical Utah watershed. Phragmites continues to intrude upon the habitat area of several endangered or

threatened species, as well as species of concern. These include, as recommended by UDWR, June sucker, Utah sucker, channel catfish, bullhead catfish, panfish including bluegill and crappie, and large-mouth bass; shore birds, neotropical birds, and water fowl including the Avocet, Stilt, Caspian Tern, Plover, and Long-billed Curlew.

Relation To Management Plan:

(Management Plans and objectives are named and then numbered in brackets or parenthesis)

This project will continue the process needed to help several agencies accomplish their goals and objectives. The agencies, the plans and objectives are listed below.

The Utah Lake Commission [1,2 (two objectives)] and Division of Forestry, Fire and State Lands [3,4 (two objectives)] adopted the Utah Lake Master Plan in June 2009. It specifically lists removal of phragmites around Utah Lake as a high-priority goal. The Master Plan also lists the importance of insect control to benefit public health--a direct result of this removal effort.

The Utah County Commission (5) has identified phragmites as a noxious weed at the recommendation of the Utah County Weed Board. This board meets regularly to strategize treatment of numerous types of noxious weeds in Utah County. This is outlined in the 2013 County Resource Assessment. Restoration of the shoreline of Utah Lake is a high priority of this board. The Utah County Mosquito Abatement (6) district has identified phragmites removal as a priority as well.

Listed as a noxious weed that needs to be controlled in the 2013 Alpine Conservation District Resource Assessment (7) and the 2013 Timp Nebo Conservation District Resource Assessment (8)

Removal of phragmites also helps the Division of Wildlife Resources (9) reclaim valuable habitat for wildlife. It is also a priority of several municipalities, including the City of Saratoga Springs (10) and Provo City (11), Lehi City (12) to have this invasive species controlled as it grows closer to existing homes and planned developments.

The Utah Department of Agriculture and Food (13) has identified phragmites as one of their top priorities for invasive species control, within the new Invasive Species Mitigation program, which is a partner in this grant.

The June sucker Recovery Implementation Program (14) has identified phragmites at Utah Lake to be detrimental to habitat and has been supporting efforts to remove phragmites around the lake.

This project lies within the wetland type which is one of the key habitats identified in the WAP. This area supports a variety of wildlife species including many that are listed in the WAP such as fish, neotropical birds, raptors, and wading and shorebirds. June sucker, an endangered fish endemic to Utah Lake, may also receive benefit from a long-term phragmites removal effort of which this project is the first step. Other species of concern, as identified by UDWR include, fish such as the Utah sucker, channel catfish, bullhead catfish, panfish including bluegill and crappie, and large-mouth bass; birds, including the Avocet, Stilt, Caspian Tern, Plover, and Long-billed Curlew.

This project lies within a wetland/lake conservation focus area as determined by the Central Region UPCD team

Fire / Fuels:

Lakeside developments are springing up around a majority of the north half of Utah Lake along with municipal infrastructure to support the growth. As phragmites invades the shoreline, it creates a substantial fuel load and hazard to residential neighborhoods, golf courses (Talons Cove, East Bay, Sleepy Ridge), parks, campgrounds, commercial structures and associated infrastructure that all border the lake. Both Provo Bay and the Powell Slough which make up the 2257 acre project border residential and commercial properties.

East Bay Golf course and the Provo Airport along with many neighboring residential developments could be impacted and at risk as a result of a large fire in Provo Bay where we have proposed to treat 1375 acres.

A fire in the Powell Slough would put commercial properties and Sleepy Ridge Golf Course at risk. This portion of the project hasn't been treated in many years and has substantial fire fuels throughout the proposed 822 acres in this specific portion of the project.

A lawsuit between Saratoga Springs and the Utah Division of Forestry Fire and State Lands highlighted the reality of this fire risk after which the State was ordered to create fire barriers by removing the phragmites vegetation.

Our multi-year project reduces the fuel loading around the lake and prevents the risk of Catastrophic Fires.

Reducing the fuels along the shoreline also prevents the negative impacts of large fires to the Air quality along the Wasatch Front which is uniquely susceptible to poor air quality.

*See attached photos from previous fire that damaged roadside fences at the Saratoga Springs Marina

Water Quality/Quantity:

By treating and removing Phragmites and allowing native vegetation to take hold, we see positive impacts to the water quality in Utah Lake. Replacing Phragmites with other native species provides better uptake from those natives species of pollutants of concern, whether nutrients or E. coli, for example. Removing Phragmites also creates good habitat for riparian species, which in turn can increase and improve shading depending on the native vegetation in the area, and this can have a positive effect on temperature. Removal efforts of Phragmites also creates a more complex riparian root system that is better habitat for juvenile fish and other species.

Utah Lake is a priority on the current Utah County Resource Assessment Plan created in 2013. It points out that the lake provides water not only to its county residents but also to Salt Lake County. As the third largest freshwater lake in the western United States, Utah Lake contains ~902,400 acre feet of water when full. As such, it is a very important part of the watershed both in quantity and for its quality. This project along with many others are contributing to improving the value of this resource.

Compliance:

No action required

Methods:

Following a similar plan that the DWR has been using in northern Utah and which has been used for the past several years on Utah Lake, we have developed a plan to control and contain phragmites, other invasive plants, and to reestablish desirable vegetation in appropriate locations. The plan involves a three-year, four-step process, with monitoring and a management strategy to prevent spread and re-invasion. Each year new sites will begin the process and previous years' treatment sites will fall along the process spectrum as identified in our long-term removal plan.

Methods for Treatment:

Year 1

- 1) Fuel breaks will be constructed and treated with AquaNeat where needed.
- 2) A contracted helicopter will be used to treat the project area with AquaNeat in late summer.
- 3) Contractors will be used to remove and treat stumps with AquaNeat of tamarisk and Russian olive from strategic areas in the Fall/Winter.
- 4) Utah County crews will smash or contract the smashing for much of the biomass in the treated area during the winter.
- 5) Utah County weed crew will spot treat regrowth of phragmites in the project area with AquaNeat in accessible areas in the spring.

Year 2

- 1) Regrowth of phragmites will be spot treated with AquaNeat by Utah County crews in the fall (10-20% regrowth is expected).
- 2) Tree stumps of tamarisk and Russian olive will be retreated with AquaNeat in summer.
- 3) Regrowth will be smashed mechanically during the winter.
- 4) Continual monitoring of regrowth and treatment as needed will be done during the year.
- 5) Revegetation of strategic areas are considered based on the public use, need, and expected success rate of the project.

Year 3, 4, 5...

- 1) Continual maintenance will occur
- 2) Spot treatment of any regrowth along the shoreline will continue.
- 3) Smashing will occur if the lake is low enough and is needed.

Monitoring:

Utah County Public Works Department (weed program) will monitor the effectiveness of spraying efforts on phragmites and conduct follow-up treatments as necessary. Photopoints will be established to document pre and post-treatment implementation activities and compared each year to determine the effectiveness of the treatment.

Each year the Lake Commission captures images of the entire shoreline of the lake to document the work completed and review year to year progress for monitoring purposes.

Starting in 2015, we have incorporated the use of Drone technology to further document regrowth and smashing activities. This helps better monitor and identify needed retreatment areas.

Partners:

Utah County
Department of Agriculture - ISM
Utah Lake Commission
Central Utah Water Conservation District
Utah Division of Forestry Fire and State Lands
Saratoga Springs City

Future Management:

The Utah Lake Commission, comprised of 16 cities, Utah County, UDNR, UDWQ, CUWCD, has a long term vested interest, regardless of land ownership, in maintaining the shorelines of Utah Lake and has identified this as a priority in the Utah Lake Master Plan. As the owner of the lake bed, the Utah Division of Forestry Fire and State Lands is also dedicated to long term lake management.

As described in the methods section, our long-term plan includes monitoring and managing the treated areas into the future to ensure the shoreline remains clear of phragmites.

Each year an aerial fly over is completed and used to analyze areas where re-treatment is needed. This provides a site specific plan to be created for spot treatments where regrowth is taking place.

Domestic Livestock Benefit:

Many areas along the shoreline of Utah Lake are used to graze livestock, as phragmites is cleared, livestock production increases with the additional acreage created by the open space where native grasses and plants reestablish. At least a few ranchers with property along the lake have expressed how grateful they are for treatments that have opened up land again for the livestock.

BUDGET		WRI/DWR	Other	Budget Total	In-Kind Total	Grand Total
		\$107,818.94	\$113,612.00	\$221,430.94	\$70,975.00	\$292,405.94
Item	Description	WRI	Other	In-Kind	Year	
Contractual Services	Phragmites Smashing Funds secured through the Utah Division of Forestry Fire and State Lands	\$0.00	\$15,000.0	\$0.00	2017	
Materials and Supplies	Herbicide: Provo Bay - AquaNeat (Airspray)	\$20,985.9	\$0.00	\$0.00	2017	
Materials and Supplies	Herbicide Powell Slough AquaNeat (Airspray)	\$0.00	\$15,262.5	\$0.00	2017	
Materials and Supplies	Re-treatment Areas AquaNeat (Hand Spray)	\$6,012.50	\$0.00	\$19,706.3	2017	
Materials and Supplies	Herbicide Re-treatment Area AquaNeat (Hand Spray)	\$0.00	\$3,052.50	\$15,781.1	2017	
Materials and Supplies	Herbicide Provo Bay R11 Surfactant	\$4,537.50	\$0.00	\$0.00	2017	
Materials and Supplies	Herbicide: - Powell Slough - R11 Surfactant	\$0.00	\$3,300.00	\$0.00	2017	
Materials and Supplies	Mapping	\$1,000.00	\$1,000.00	\$0.00	2017	
Materials and Supplies	Land Tamer Parts	\$2,333.00	\$1,000.00	\$0.00	2017	
Contractual Services	Provo Bay - Air Spray Contract	\$24,750.0	\$0.00	\$0.00	2017	
Contractual Services	Powell Slough - Air Spray Contract	\$0.00	\$18,000.0	\$0.00	2017	
Contractual Services	Re-treatment Area - Labor for hand spray / removal	\$0.00	\$5,197.00	\$19,706.3	2017	
Contractual Services	Re-treatment Area - Labor for Hand Spray / Removal	\$5,200.00	\$0.00	\$15,781.1	2017	
Contractual Services	Project Area: Contract for Invasive Russian Olive/Tamerisk removal	\$0.00	\$15,000.0	\$0.00	2017	
Contractual Services	Project Area:	\$20,000.0	\$0.00	\$0.00	2017	

Item	Description	WRI	Other	In-Kind	Year
	Contract for Invasive Russian Olive/Tamerisk removal				
Contractual Services	Project Area: Contract Phragmites removal	\$0.00	\$31,200.0	\$0.00	2017
Contractual Services	Project Area: Contract Phragmites Removal	\$20,000.0	\$0.00	\$0.00	2017
Other	Admin 5%	\$3,000.00	\$5,600.00	\$0.00	2017

FUNDING	WRI/DWR	Other	Funding Total	In-Kind Total	Grand Total
	\$107,818.94	\$113,612.00	\$221,430.94	\$70,975.00	\$292,405.94

Source	Phase	Description	Amount	Other	In-Kind	Year
FFSL (pre-suppression)	N565		\$50,000.0	\$0.00	\$0.00	2017
UDAF ISMF			\$0.00	\$98,612.0	\$0.00	2017
FFSL			\$0.00	\$15,000.0	\$0.00	2017
DNR Watershed	N362		\$57,818.9	\$0.00	\$0.00	2017
Utah Lake Commission		Land Tamer	\$0.00	\$0.00	\$6,187.50	2017
CUP		Land Tamer from Central Utah Water Conservation District	\$0.00	\$0.00	\$6,187.50	2017
Utah County			\$0.00	\$0.00	\$58,600.0	2017

EXPENSE	WRI/DWR	Other	Expense Total	In-Kind Total	Grand Total
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Source	Phase	Description	Amount	Other	In-Kind	Year
FFSL (pre-suppression)	N565	N/A	\$0.00	\$0.00	\$0.00	
UDAF ISMF		N/A	\$0.00	\$0.00	\$0.00	
FFSL		N/A	\$0.00	\$0.00	\$0.00	
DNR Watershed	N362	N/A	\$0.00	\$0.00	\$0.00	
Utah Lake Commission		N/A	\$0.00	\$0.00	\$0.00	
CUP		N/A	\$0.00	\$0.00	\$0.00	
Utah County		N/A	\$0.00	\$0.00	\$0.00	

SPECIES

Species	"N" Rank	HIG/F Rank
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Snowy Plover	N3	N/A
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Threat	Impact
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Invasive Plant Species – Non-native	Medium
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Channel Catfish	4
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Threat	Impact
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Not Listed	NA
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Bluegill	3
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Threat	Impact
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Not Listed	NA
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Waterfowl	N/A
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Species	"N" Rank	HIG/F Rank
Threat		Impact
Not Listed		NA
Black Bullhead		5
Threat		Impact
Not Listed		NA
June Sucker	N1	N/A
Threat		Impact
Invasive Plant Species – Non-native		Low
Invasive Wildlife Species - Non-native		High

HABITATS

Habitat

Aquatic-Scrub/Shrub

Threat	Impact
Invasive Plant Species – Non-native	Medium
Fire and Fire Suppression	Medium
Open Water	
Threat	Impact
Invasive Plant Species – Non-native	Medium
Stormwater Runoff	Low

PROJECT COMMENTS

Comment 02/01/2016 Type: Project Commenter Chris Crockett

Removal of phrag and establishment of native vegetation will enhance June Sucker juvenile habitat. The Commission is no stranger to this issue, but I suggest continuing their efforts to educate the public/angler about the advantages of removal. Keep up the good work.

Comment 02/02/2016 Type: Project Commenter Eric Ellis

Chris,
Great feedback. We are working with a group to develop a few educational video segments on the purposes and benefits to Phragmites removal and hoping to have them done soon. I'll be sure to share them with you and have them up on our website when they are completed.

Comment 02/01/2016 Type: Project Commenter Jimi Gragg

I'm really glad to see this work continue, I support it. I think you can add the habitat Aquatic - Emergent (basically, "marsh") to your list of habitats benefited (native marsh is meant to return to the shallow-water areas being treated, right?). Also, I don't think you should claim you're doing anything about Natural Rarity (Caspian tern) unless you think you'll be restoring a nesting beach that the phrag ate, or something like that.

Comment 02/03/2016 Type: Project Commenter Eric Ellis

Jimi,
I pulled the Caspian Tern, that species had been identified in previous years and was inserted again under the same pretext. That said, It was identified by a DWR biologist who felt it was appropriate back a few years ago, but I'm happy to remove it if you don't think it will benefit from the restored shoreline restoration work. You also mention something about adding Aquatic Emergent. The new database only has a few habitat options and

that isn't one of them at this point.Thank you for your feedback.

Comment 02/02/2016 Type: Project Commenter Alison Whittaker

Approved to go forward to ranking - CRO UPCD

COMPLETION

Start Date:

End Date:

FY Implemented:

2017

FY Completed:

Final Methods:

N/A

Project Narrative:

N/A

Future Management:

N/A

Map Features

ID	Feature Category	Action	Treatment/Type
5214	Terrestrial Treatment Area	Herbicide application	Aerial (helicopter)
5215	Terrestrial Treatment Area	Herbicide application	Spot treatment